

Title (en)  
KEEL COOLER WITH FLUID FLOW DIVERTER

Title (de)  
KIELKÜHLER MIT FLUIDSTROMUMLENKER

Title (fr)  
ECHANGEUR THERMIQUE A DEVIATION DE FLUX

Publication  
**EP 1556658 B1 20190501 (EN)**

Application  
**EP 03777968 A 20031028**

Priority  
• US 0334343 W 20031028  
• US 28257102 A 20021029

Abstract (en)  
[origin: US2004079516A1] A keel cooler having a standard header with an internal beveled bottom wall, with orifices on the inner wall of the exterior tubes extending into the header, the orifices being in the natural flow path of the coolant flow. The orifices are sufficiently large so as not to restrict the flow of coolant. A fluid flow diverter is additionally provided in the header of the keel cooler for facilitating coolant flow towards both the interior tubes and also towards the exterior tubes.

IPC 8 full level  
**F28F 1/00** (2006.01); **F01P 3/20** (2006.01); **F28D 1/053** (2006.01); **F28F 9/02** (2006.01); **F28F 9/04** (2006.01); **B63J 2/12** (2006.01)

CPC (source: EP KR US)  
**B63B 3/38** (2013.01 - EP US); **B63H 21/10** (2013.01 - EP US); **B63H 21/383** (2013.01 - EP US); **F01P 3/207** (2013.01 - EP US); **F28D 1/022** (2013.01 - EP US); **F28D 1/05366** (2013.01 - EP US); **F28F 9/00** (2013.01 - KR); **F28F 9/02** (2013.01 - EP US); **F28F 9/0246** (2013.01 - EP US); **F28F 9/0256** (2013.01 - EP US); **B63J 2/12** (2013.01 - EP US); **Y10S 165/483** (2013.01 - EP US)

Cited by  
CN104169673A

Designated contracting state (EPC)  
BE DE FR GB NL

DOCDB simple family (publication)  
**US 2004079516 A1 20040429**; **US 6896037 B2 20050524**; AU 2003286756 A1 20040525; AU 2003286756 A8 20040525; BR 0315069 A 20050816; BR 0315069 B1 20140114; CA 2501181 A1 20040513; CA 2501181 C 20100112; CA 2683025 A1 20040513; CA 2683025 C 20120117; CA 2683027 A1 20040513; CA 2683027 C 20140325; CN 100483061 C 20090429; CN 101027531 A 20070829; EP 1556658 A2 20050727; EP 1556658 A4 20060503; EP 1556658 B1 20190501; HK 1108936 A1 20080523; KR 100693915 B1 20070312; KR 20050061589 A 20050622; US 2005205237 A1 20050922; US 2007187066 A1 20070816; US 7201213 B2 20070410; US 7481262 B2 20090127; WO 2004040223 A2 20040513; WO 2004040223 A3 20050421; ZA 200502985 B 20060222

DOCDB simple family (application)  
**US 28257102 A 20021029**; AU 2003286756 A 20031028; BR 0315069 A 20031028; CA 2501181 A 20031028; CA 2683025 A 20031028; CA 2683027 A 20031028; CN 200380102479 A 20031028; EP 03777968 A 20031028; HK 07114070 A 20071224; KR 20057007562 A 20050429; US 0334343 W 20031028; US 13489205 A 20050523; US 78469407 A 20070409; ZA 200502985 A 20050413